



THE DEMAND FOR AIR FREIGHT

THE HOUSTON PERSPECTIVE

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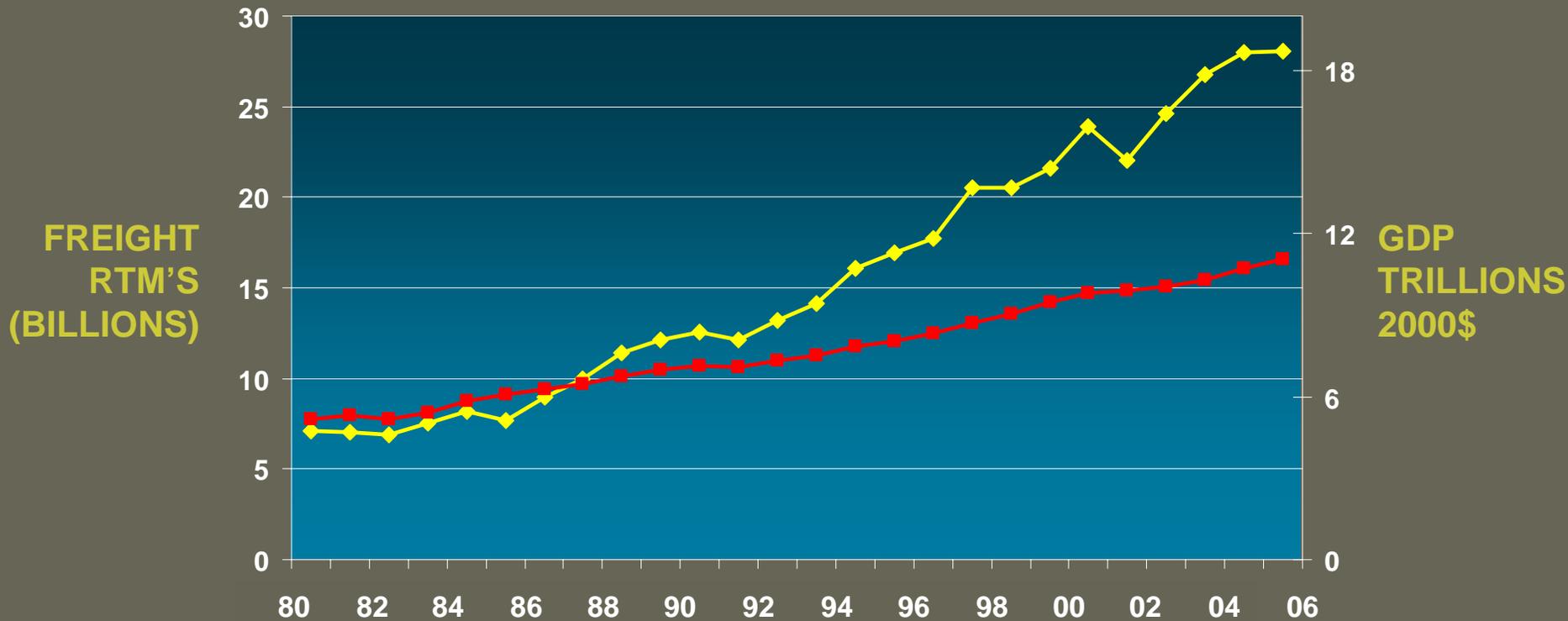
Air Freight is a Derived Demand

- Part of a Production Line – Just-in-time
- “Planned Emergencies”
 - Reduce safety stocks. Meet unplanned sales surges by air cargo
- Perishables – Seafoods, Medications
- Goods Very Sensitive to the Time of Purchase – Newspapers, Fashionable Clothing
- Market Penetration/Close Remote Warehouse Ship C.I.F.
- Supply-creates-demand – Directional Balancing

Growth of Air Freight

- **Global Factors Affect The Demand For Air Freight**
 - Trade liberalization
 - Wage differences between countries
 - Global production lines
 - Inventory reduction
 - Market penetration
 - Faster customs clearance
 - Growth of by-product capacity on passenger aircraft – sometimes
 - Customer incomes/expectations – fresh fruit every day

Air Freight Growth Outpaces Economic Growth

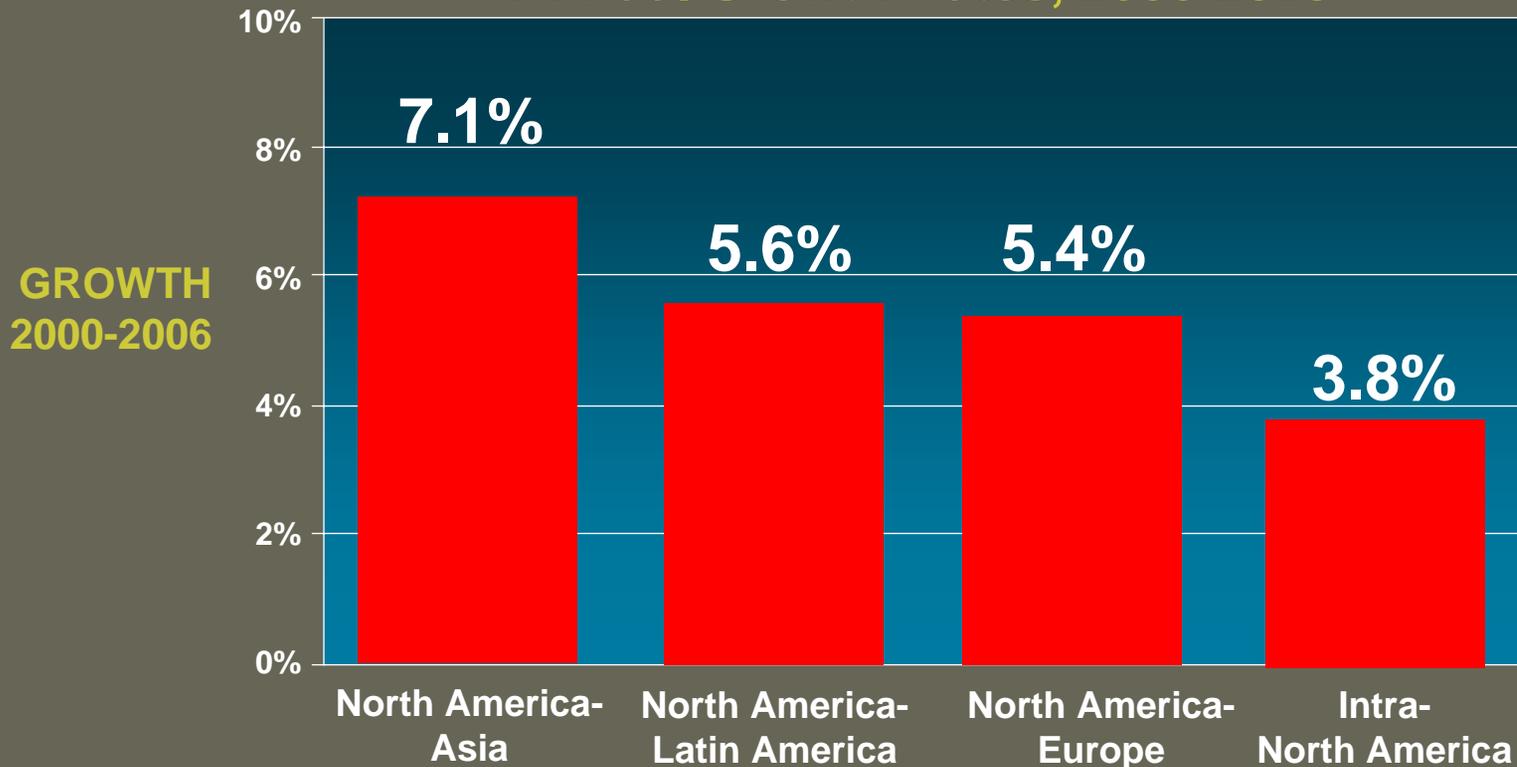


Source:
Air Transport Association,
Bureau of Economic
Analysis

—◆— Cargo RTM's (Billions) —■— GDP Trn. 2000\$

Forecasts Call for Sustained Air Freight Growth

Annual Growth Rates, 2006-2025



Source: Boeing World Air Cargo Forecast, 2006-2025

32ND FAA AVIATION FORECAST CONFERENCE, WASHINGTON, DC, MARCH 16, 2007

Two Types of Air Freight

- **Express**

- Small, premium, high service standard
- Usually door-to-door
- Carried by Integrators
- Dedicated aircraft

**Integrators
Increasingly Seek
General Air Freight**

- **General Air Freight**

- Large items, perishables, livestock etc.
- Containerized services (wide body) very important
- Lower level of service, price-sensitive
- Airlines/forwarders/customs brokers/ truckers
- Often goes by truck
- Forwarders, not airlines, control market
- Small domestic market

Four Types of Carriers

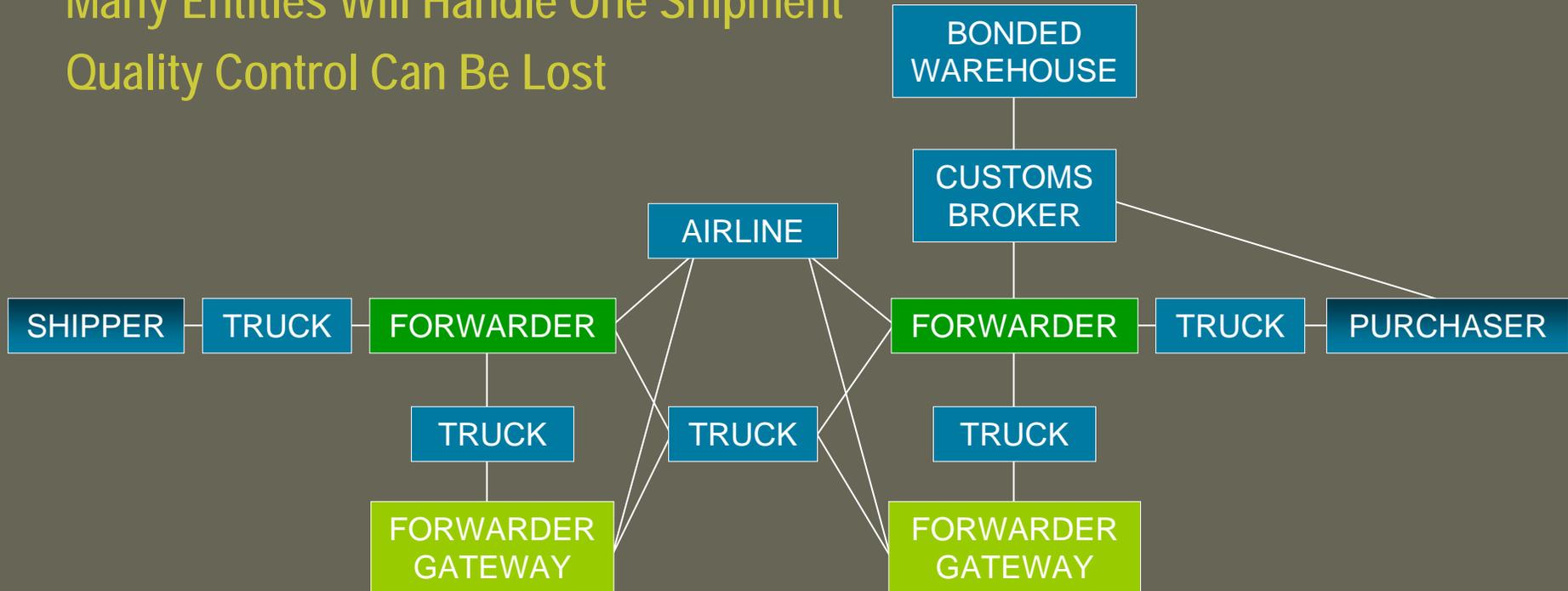
- **Integrators**
 - FedEx, UPS, DHL
 - Perform all shipping functions
 - Excellent quality control, reliability for premium traffic
 - Targeting non-premium general cargo
- **Passenger Airlines**
 - Carry general cargo as incidental revenue
 - Forwarders control customers, choice of carrier
- Many companies participate in one shipment
- Less reliable than integrators
- Belly capacity. Some have all-freight aircraft
- **All-freight Specialists**
 - Carry general cargo on dedicated freighters
- **Large/Awkward Goods Specialists**
 - Ex-Soviet military aircraft for outsized items

General Air Freight Can Use Many Entities

The “Air Freight” May Travel Entirely By Truck

Many Entities Will Handle One Shipment

Quality Control Can Be Lost



A Shipment on an Integrator Needs Only One



The “air freight” may travel by any mode but will always be managed by one company. Tight quality control will remain.

Growth of International Express

- Increased shipments of ultra-high value components, with severe consequences for late delivery
- Liberalization eliminating barriers to entry
- Increasing need for control over aircraft capacity forces integrators to offer own-aircraft services
- Integrator diversification to non-premium products

The China Factor

- Huge Size
- Economic Liberalization and WTO
- Must Finance Increased Energy Imports
- Increasing Costs in Japan, Korea
- Increased Manufacturing Role
- Large U.S. Trade Deficit
- Poor Surface Links → Air Freight

Growing Trans Pacific Trade has Important Implications

- Increasing need for liberalization e.g. 7th freedom
- China-U.S. Traffic increasingly constrained by lack of U.S.-China traffic
- Availability of revenue backhaul traffic will help U.S. airports compete
- Large air freight: passenger ratios will require freighter capacity

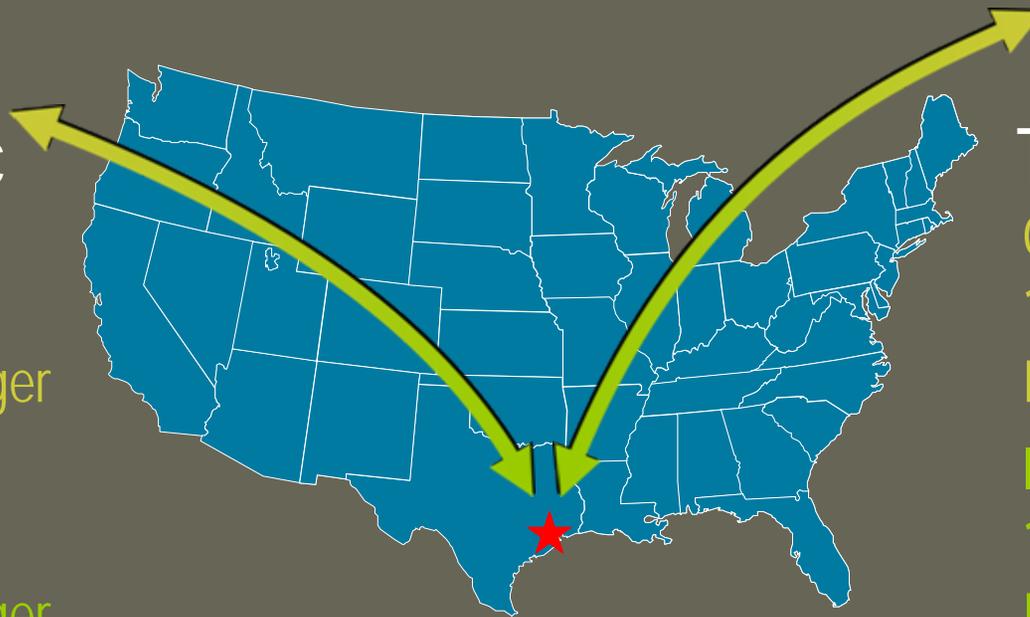
The Pacific Generates a Large Volume of Air Freight in Relation to the Number of Passengers

The Pacific

Outbound:
211 Pounds
Freight/Passenger

Inbound:
448 Pounds
Freight/Passenger

Passenger flight capacity cannot meet huge market demand. All-cargo aircraft needed. Expensive capacity requires high yields



The Atlantic

Outbound:
121 Pounds
Freight/Passenger

Inbound:
123 Pounds
Freight/Passenger

Huge belly capacity can meet most market demands. Low costs lead to low yields. All-cargo aircraft are marginal.

New All-Cargo Aircraft Will Meet Future Demands

- On most routes (e.g. Atlantic), “free” combination capacity will keep rates too low for most all-cargo flights
- Heavy air freight demand cannot be met with by-product belly capacity on some routes (Pacific)
- Freighter demand will be met by new aircraft and converted ex-passenger aircraft
- New equipment will have longer range for greater flexibility, larger payloads
- World freighter fleet will double by 2025

Air Freight Will Demand The Finest and Most Modern Aircraft



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Air Freight is a Large Contributor to the Houston Economy

\$385 Million

Sales

1,419

Jobs

\$138 Million

Earnings

Totals do not include air cargo operations of passenger airlines

Growth of Houston

- Seventh largest metropolitan area in United States
- 1990-2000 growth of 25.2 percent to U.S. average of 13.2 percent (Source: Woods and Poole)
- Larger GDP than Austria (Source: Perryman Group)
- 5,000 energy-related businesses
- Port of Houston first in U.S. for foreign tonnage
- Third city for Fortune 500 HQ's
- Forbes #3 rating in 2006 as place for new business

An Energy Center ... and More

- Large energy producer, global center of energy logistics, management, research
- High energy prices will benefit Houston and its air traffic
- Texas Medical Center – 73,000 employees and 5.2 million patients, 2005
- World center for nanotechnology research, pharmaceuticals
- Hewlett-Packard, NASA, Continental Airlines
- Diversified economy, consistent inbound and outbound demand for air freight.

General Air Freight Needs

Containerized Capacity

- Air freight containers: large items, less theft/handling/damage, fewer split shipments
- Easy for airlines to manage through allotments
- Carriers offer low containerized rates to shippers
- Forwarders use containers for consolidation
- Containers easily transferred to trucks
- Containers carried in:
 - Narrow/wide body all-cargo aircraft
 - Wide body combination aircraft
 - Trucks

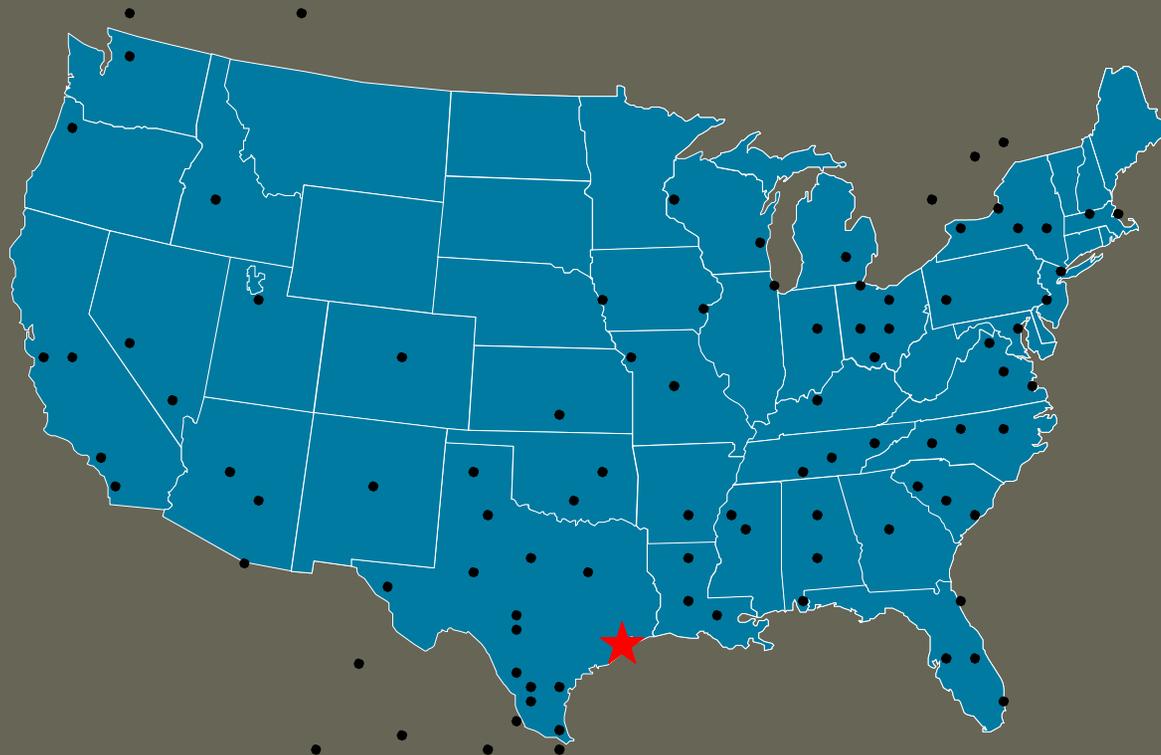
Houston Has a Sophisticated Program for Developing Its Air Freight Services

International Palletized Capacity



Houston Has Road Feeder Services for Air Freight Throughout North America

Principal Air-Truck Destinations from Houston



The Forwarder Gateways are Very Powerful

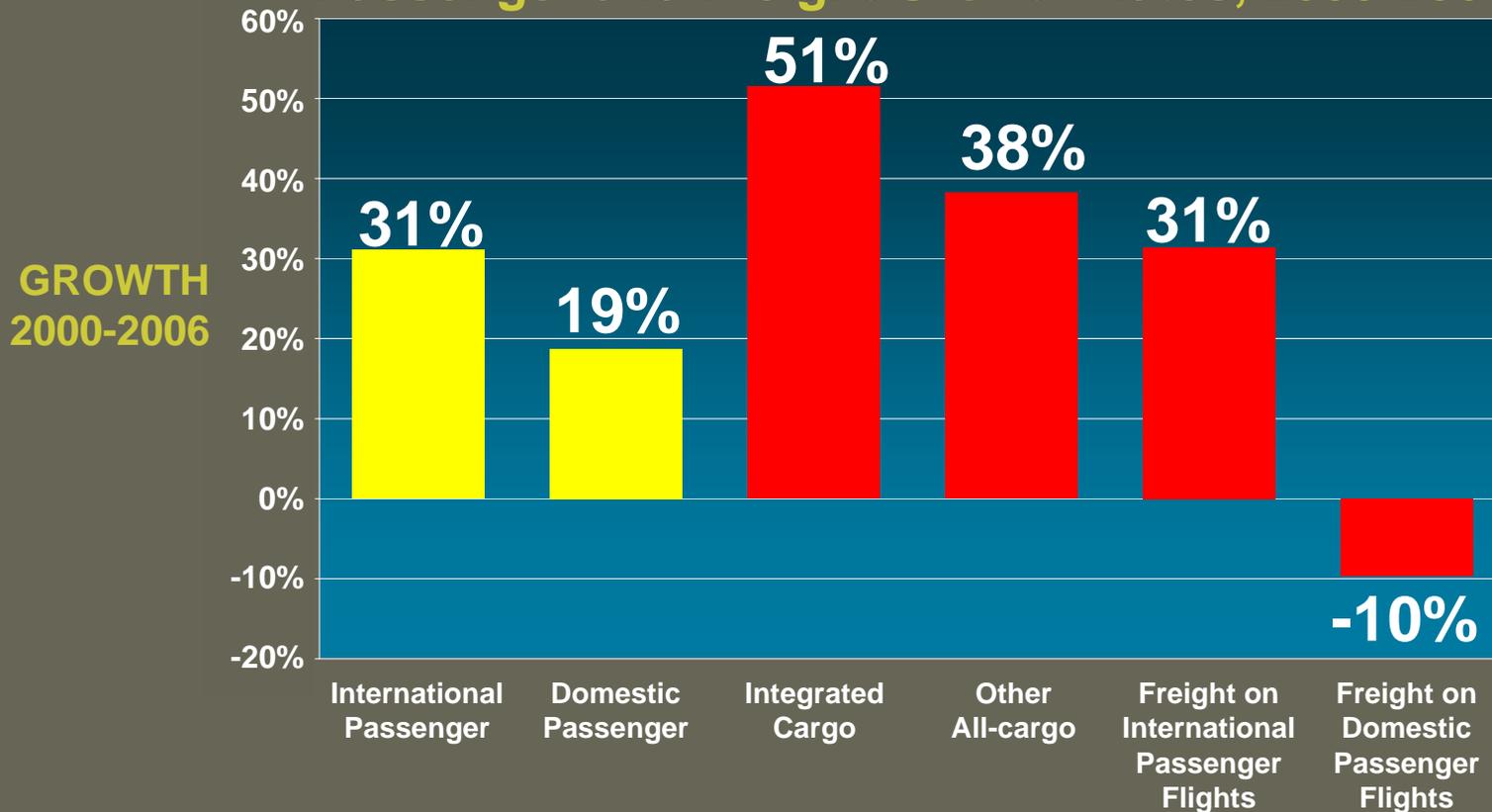
- Forwarders Consolidate Traffic at Large “Gateway”
- Truck from Interior to Gateway
- Ship by Air from Gateway
- Consolidate at Gateway – Buy Whole Container
- Get Best Freight Deal
 - Air freight contract rate at gateway
 - Cheaper than shipping directly from interior point

By Trucking to/from Houston, and Using the Bush Intercontinental Airport's Forwarder Gateways, Shippers Throughout North America Get Fast, Economical Air Freight Services to the World



Houston's Air Freight is Expanding Faster than its Passenger Traffic

Passenger and Freight Growth Rates, 2000-2006



Source: Houston Airport System

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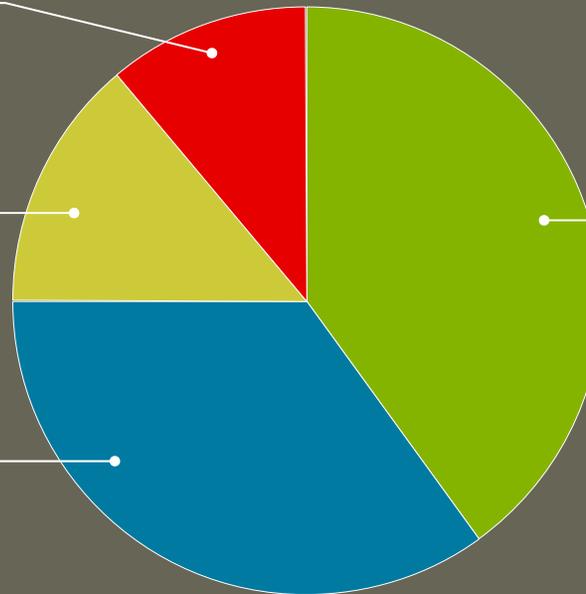
All-Cargo Aircraft Carry over Half of Houston's Air Freight

11% All Cargo

14% Freight on Domestic Passenger

35% Freight on Intl Passenger

40% Integrator



Air Freight Has a Bright Future at Houston

- Air freight a derived demand – JIT, inventory, perishables
- Air freight growth outpaces GDP
- Express vs. general freight, integrators vs. forwarders/airlines
- Passenger aircraft belly capacity adequate for many routes, but Pacific needs all-cargo aircraft
- Trucks important for feeding general cargo flights
- Growing capacity, trucks and forwarder gateways make Houston a growing air freight hub
- Houston large, diversified: strong air freight prospects



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